

ON A COLLECTION OF FISHES FROM ECHIGO, JAPAN.

By DAVID STARR JORDAN and ROBERT EARL RICHARDSON,
Of Stanford University.

The writers have recently received from Mr. Masao Nakamura, a Japanese naturalist, teacher in the schools of Nagaoka, in the province of Echigo, in Japan, a small collection of fishes, from that region. Among these are three species new to science. Series of the specimens mentioned are in the United States National Museum and in the museum of Stanford University.

Family COBITIDÆ.

1. LEFUA^a ECHIGONIA Jordan and Richardson, new species.

Head $4\frac{2}{3}$ in length, to base of caudal; depth $5\frac{2}{3}$; D. 7 or 8; A. 1, 7; scales about 90; width of head $1\frac{2}{3}$ in its length; snout 3 in head; interorbital space $2\frac{1}{2}$ in head; pectoral $1\frac{1}{2}$; ventral $2\frac{1}{4}$; eye 2 in interorbital space.

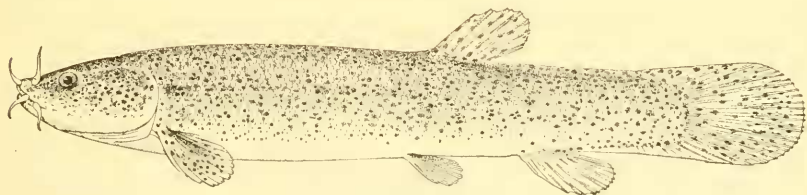


FIG. 1.—LEFUA ECHIGONIA.

Body moderately elongate, compressed behind; caudal peduncle deep, its depth fully half the length of the head; head depressed, broad and flat above, its width more than two-thirds of its length; eyes anterior, lateral; mouth somewhat inferior, subterminal, with fleshy lips, the lower jaw included, barbels 8, one pair nasal, one pair terminal on the maxillary, and two pairs on the muzzle anterior to the nasal and superior to the maxillary pair.

Scales very small, cycloid, none on the head; lateral line obsolete.

Dorsal inserted slightly behind ventrals, the base of its first ray nearer to tip of caudal than to end of snout; anal wholly behind dorsal; caudal rounded, a low adipose membrane procurent on the caudal peduncle dorsally and ventrally.

^aAccording to Dr. Leo Berg (Proc. U.S.N.M., XXXII, 1907), *Elvis* Jordan and Starks, to which this species belongs, is identical with the earlier *Lefua* Herzenstein (1888).

Color in spirits olivaceous, densely dusted everywhere except on belly with rather coarse dark specks; a lateral row of obscure, irregularly formed, or more or less broken dusky spots, each nearly as large as eye; a dark humeral spot of rectangular form situated in a pit-like depression; belly pale, whitish; dorsal and caudal finely specked with dusky; other fins plain; no large fin spots or blotches.

This species is related to *Lefua nikkonis* (Jordan and Fowler), differing from it, however, in its much smaller scales, shorter ventral fins, and in its coloration, there being no caudal blotch.

Known from three specimens $1\frac{1}{2}$ to $1\frac{3}{4}$ inches long from a stream near Nagaoka, in Echigo, Japan, on the northwestern part of the island of Hondo.

The type is Cat. No. 20164, Stanford University. A cotype is in the U. S. National Museum.

(*Echigo*, a province in Japan).

Family AGONIDÆ.

2. PALLASINA ERYNGIA Jordan and Richardson, new species.

Head 4.2 in length without caudal; depth 3.50 in head; width of body in front of soft dorsal, where body is not subject to distention, 27.5 in length without caudal; D. VI-8; A. 10; P. 11; eye 2.5 in snout; interorbital space 2 in diameter of orbit; nose 2.1 in head; barbel twice head; plates in lateral line 50; between dorsals 12; between ventrals and anal 15.

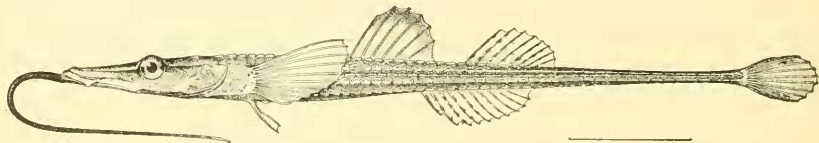


FIG. 2.—PALLASINA ERYNGIA.

Body completely encased in an armor of bony plates, as in *P. barbata* (Steindachner); plates of the dorsal and ventral edges with low keels which terminate behind in a short spine; breast with a central plate larger than the rest, surrounded by smaller plates which lie between it and the bounding pectoral edge; all the plates with radial striations proceeding from a central umbo or from the point of the keel; a sub-orbital row of small, thin plates with radiating striae; angle of operculum and preoperculum each with a short spine; jaws with fine awl-shaped teeth in narrow bands.

Spinous a little higher than soft dorsal, its longest spine 2.6 in head; origin of anal barely in front of base of first dorsal; pectorals reaching slightly past front of first dorsal; ventrals (in male) 3.25 in head.

Color of upper parts in alcohol brownish, specked very finely and densely with darker; a rather sharp line, coinciding with the keels of

the lower row of lateral scutes, separating the upper darker from the lower paler color of the anterior part of the trunk; breast and forward part of belly pale; concavity of hinder part of belly behind front of anal, and of caudal peduncle, darkened with fine punctulations, which are more or less gathered into roundish blotches, forming a moniliform series, and not extending fully to the margins of the concavity.

Here described from a single specimen, the type, No. 20165, Stanford University, $5\frac{1}{2}$ inches long, taken on the coast of Echigo, Japan, by Masao Nakamura. Four specimens of a similar fish, 3 to 4 inches long, and with the barbel about equaling the length of the head, taken by Messrs. Jordan and Snyder at Aomori, Japan, in 1901, possibly belong to this species. The species here described is well distinguished from *Pallasina barbata*^a (Steindachner) by its slenderer body, its extremely elongated barbel, and its fewer pectoral rays (these being 12 or 13 in *P. barbata*.)

(ἰππυργός, the goat's beard.)

Family GOBIIDÆ.

3. CHLOËA NAKAMURÆ Jordan and Richardson, new species.

Head $3\frac{1}{5}$; depth $4\frac{1}{5}$; D. VII—11; A. 11; P. 18; eye $4\frac{2}{3}$ in head; nose $3\frac{2}{3}$; maxillary $2\frac{1}{5}$; interorbital $\frac{2}{3}$ of eye; scales 70.

Body robust, not much compressed, the back elevated, the profile convex behind nape, and the caudal peduncle slender, its depth about 4 in head; head pointed, deeper than wide; interorbital space concave; eyes anterior, directed somewhat upward; mouth very large, the maxillary reaching a vertical from posterior border of pupil; tongue broad, bifid; gill membranes united to isthmus at a point two eye-lengths in front of ventrals; gill-rakers on first arch $2 + 10$, short and thick; pseudobranchiae large.

Scales small and finely ctenoid; head and breast naked; belly covered with very small, easily displaced scales.

Dorsal fins separated by a distance equal to diameter of eye, the spinous scarcely higher than the soft dorsal; anal inserted under third ray of soft dorsal, length of depressed anal five-sixths of head; caudal rounded posteriorly; pectoral rounded behind, no filaments on its upper edge; ventrals reaching one-half the distance from their base to base of anal.

^aSix specimens of *Pallasina barbata* from Port Clarence, Alaska, 2 from Herendeen Bay, 3 from Chignik Bay, and 4 from Nemuro, Japan, show no noticeable variation in the body proportions, in the length of the barbel, or in the number of pectoral rays, the barbel never exceeding in length twice the diameter of the eye. The specimens mentioned include both males and females. *Pallasina aie* Starks is distinguished both from the present species and from *P. barbata* by its much larger eye, which is fully $1\frac{1}{4}$ times the diameter of the eye in specimens of the other two species, and the belly is punctulated more densely and evenly and farther forward.

Color in spirits pale muddy pinkish, everywhere densely and finely specked with black, including back, sides, belly, and head; fins and branchiostegals, with the exception of the pectorals, yet more densely specked with black, so that to the naked eye they appear almost jet black, especially at margins; pectorals pale; lightly specked with dusky.

This species is close to *Chloëa castanea* (O'Shaughnessy), from which it differs in its much longer maxillary and in coloration. It is here described from 3 specimens, $1\frac{3}{4}$ to 2 inches in length, from Nagaoka, in Echigo, Japan.

The type is No. 20163, Stanford University. Cotypes are in the U. S. National Museum. Two of the specimens are females, distended

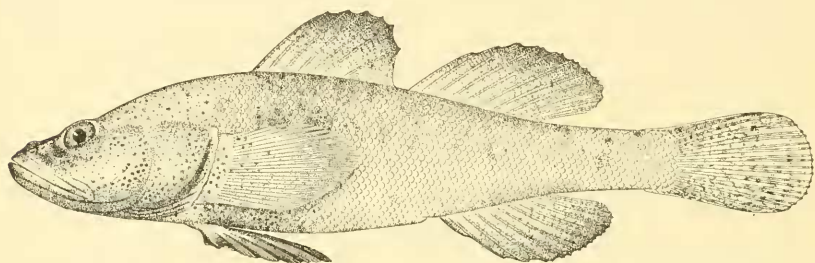


Fig. 3.—*CHLOËA NAKAMURE*.

with eggs, and a single one (the type) is a male. It is probable that the dark color on fins and branchiostegals is partially the evanescent nuptial coloration. The speckling of the belly (in both sexes) and the longer maxillary of this species sufficiently separate it from *Chloëa castanea*.

In the same collection with these species are numerous specimens of *Chernogobius macrognathos* (Bleeker) and of *Chloëa sarchoynis* Jordan and Snyder.

(Named for Masao Nakamura, a Japanese naturalist.)